CONTENTS

VOLUME 108 · NUMBER 1 · JULY 1996

1 DANIEL M. FASS and EDWIN S. LEVITAN. Bay K 8644 reveals two components of L-type Ca^{2+} channel current in clonal rat pituitary cells

13 DANIEL M. FASS and EDWIN S. LEVITAN. L-type Ca^{2+} channels access multiple open states to produce two components of Bay K 8644–dependent current in GH_3 cells

27 CLINT L. MAKINO and ROBERT L. DODD. Multiple visual pigments in a photoreceptor of the salamander retina

35 JORGE ARREOLA, JAMES E. MELVIN, and TED BEGENISICH. Activation of calcium-dependent chloride channels in rat parotid acinar cells

49 MOUHAMED S. AWAYDA, ISKANDER I. ISMAILOV, BAKHRAM K. BERDIEV, CATHERINE M. FULLER, and DALE J. BENOS. Protein kinase regulation of a cloned epithelial Na^+ channel

67 LARRY V. HRYSHKO, SATOSHI MATSUOKA, DEBORA A. NICOLL, JAMES N. WEISS, ERICH M. SCHWARZ, SEYMOUR BENZER, and KENNETH D. PHILIPSON. Anomalous regulation of the *Drosophila* Na^+–Ca^{2+} exchanger by Ca^{2+}

VOLUME 108 · NUMBER 2 · AUGUST 1996

75 SERGE POITRY, MARCOS TSACOPOULOS, ALAN FEIN, and M. CARTER CORNWALL. Kinetics of oxygen consumption and light-induced changes of nucleotides in solitary rod photoreceptors

89 LIHUI TANG, ROLAND G. KALLEN, and RICHARD HORN. Role of an S4-S5 linker in sodium channel inactivation probed by mutagenesis and a peptide blocker

105 A.N. LOPATIN and C.G. NICHOLS. $[K^+]$Dependence of polyamine-induced rectification in inward rectifier potassium channels (IRK1, Kir2.1)

115 FRANK STRIGGOW and BARBARA E. EHRLICH. The inositol 1,4,5-trisphosphate receptor of cerebellum: Mn^{2+} permeability and regulation by cytosolic Mn^{2+}

1*a*–34*a* ABSTRACTS OF PAPERS PRESENTED AT THE FIFTIETH ANNUAL MEETING OF THE SOCIETY OF GENERAL PHYSIOLOGISTS

VOLUME 108 · NUMBER 3 · SEPTEMBER 1996

125 LUIS REUSS. *Commentary*: A new method to measure alveolar-epithelium permeability in intact lung

129 RICHARD HORN. *Commentary*: Counting charges

133 ETHAN P. CARTER, MICHAEL A. MATTHAY, JAVIER FARINAS, and A.S. VERKMAN. Transalveolar osmotic and diffusional water permeability in intact mouse lung measured by a novel surface fluorescence method

143 Francesca Noceti, Pietro Baldelli, Xiangyang Wei, Ning Qin, Ligia Toro, Lutz Birnbaumer, and Enrico Stefani. Effective gating charges per channel in voltage-dependent K^+ and Ca^{2+} channels

157 H. Criss Hartzell. Activation of different Cl currents in *Xenopus* oocytes by Ca liberated from stores and by capacitative Ca influx

177 Kathrin Meyer and Christoph Korbmacher. Cell swelling activates ATP-dependent voltage-gated chloride channels in M-1 mouse cortical collecting duct cells

195 Miguel Holmgren, Mark E. Jurman, and Gary Yellen. N-type inactivation and the S4-S5 region of the Shaker K^+ channel

207 Joshua J.C. Rosenthal, Ross G. Vickery, and Wiiliam F. Gilly. Molecular identification of SqKv1A: A candidate for the delayed rectifier K channel in squid giant axon

221 Jianjie Ma, Adom González, and Rui Chen. Fast activation of dihydropyridine-sensitive calcium channels of skeletal muscle: Multiple pathways of channel gating

VOLUME 108 · NUMBER 4 · OCTOBER 1996

233 Michael Pusch. *Commentary:* Knocking on channel's door: The permeating chloride ion acts as the gating charge in ClC-0

237 Tsung-Yu Chen and Christopher Miller. Nonequilibrium gating and voltage dependence of the ClC-0 Cl^- channel

251 John J. Enyeart, Boris Mlinar, and Judith A. Enyeart. Adrenocorticotropic hormone and cAMP inhibit noninactivating K^+ current in adrenocortical cells by an A-kinase–independent mechanism requiring ATP hydrolysis

265 Cristiana Picco, Carlo Sanfilippo, Paola Gavazzo, and Anna Menini. Modulation by internal protons of native cyclic nucleotide-gated channels from retinal rods

277 Donald L. Campbell, Jonathan S. Stamler, and Harold C. Strauss. Redox modulation of L-type calcium channels in ferret ventricular myocytes: Dual mechanism regulation by nitric oxide and S-nitrosothiols

295 Mary M. Hoffman, Li-Yong Wei, and Paul D. Roepe. Are altered pH_i and membrane potential in hu MDR 1 transfectants sufficient to cause MDR protein-mediated multidrug resistance?

315 Adrian D. Bonev and Mark T. Nelson. Vasoconstrictors inhibit ATP-sensitive K^+ channels in arterial smooth muscle through protein kinase C

325 Fredrik Elinder, Michael Madeja, and Peter Århem. Surface charges of K channels: Effects of strontium on five cloned channels expressed in *Xenopus* oocytes

333 Gregor J. Jones, M. Carter Cornwall, and Gordon L. Fain. Equivalence of background and bleaching desensitization in isolated rod photoreceptors in the larval tiger salamander

341 Peter K. Lauf and Norma C. Adragna. A thermodynamic study of electroneutral K-Cl cotransport in pH- and volume-clamped low K sheep erythrocytes with normal and low internal magnesium

351 Lynne M. Quarmby. Ca^{2+} influx activated by low pH in *Chlamydomonas*

VOLUME 108 · NUMBER 5 · NOVEMBER 1996

363 XIAO-HUA CHEN, ILYA BEZPROZVANNY, and RICHARD W. TSIEN. Molecular basis of proton block of L-type Ca^{2+} channels

375 YUSHENG QU, JOHN C. ROGERS, TIMOTHY N. TANADA, WILLIAM A. CATTERALL, and TODD SCHEUER. Phosphorylation of S1505 in the cardiac Na^+ channel inactivation gate is required for modulation by protein kinase C

381 JIN LIANG SUI, KIM W. CHAN, and DIOMEDES E. LOGOTHETIS. Na^+ activation of the muscarinic K^+ channel by a G-protein–independent mechanism

393 PAMELA A. PAPPONE and SHERWIN C. LEE. Purinergic receptor stimulation increases membrane trafficking in brown adipocytes

405 HAODONG XU, JANE E. DIXON, DIANNE M. BARRY, JAMES S. TRIMMER, JOHN P. MERLIE, DAVID MCKINNON, and JEANNE M. NERBONNE. Developmental analysis reveals mismatches in the expression of K^+ channel α subunits and voltage-gated K^+ channel currents in rat ventricular myocytes

421 J. BALSLEV SØRENSEN and E. HVIID LARSEN. Heterogeneity of chloride channels in the apical membrane of isolated mitochondria-rich cells from toad skin

435 SATOMI ADACHI-AKAHANE, LARS CLEEMANN, and MARTIN MORAD. Cross-signaling between L-type Ca^{2+} channels and ryanodine receptors in rat ventricular myocytes

455 S. HOLLINGWORTH, MINGDI ZHAO, and S.M. BAYLOR. The amplitude and time course of the myoplasmic free $[Ca^{2+}]$ transient in fast-twitch fibers of mouse muscle

471 CORRECTION

VOLUME 108 · NUMBER 6 · DECEMBER 1996

473 GUY W.J. MOSS, JOHN MARSHALL, and EDWARD MOCZYDLOWSKI. Hypothesis for a serine proteinase-like domain at the COOH terminus of *Slowpoke* calcium-activated potassium channels

485 YUKIO HOSOYA, MITSUHIKO YAMADA, HIROYUKI ITO, and YOSHIHISA KURACHI. A functional model for G protein activation of the muscarinic K^+ channel in guinea pig atrial myocytes: Spectral analysis of the effect of GTP on single-channel kinetics

497 D.S. LOISELLE, G.J.M. STIENEN, C. VAN HARDEVELD, E.T. VAN DER MEULEN, G.I. ZAHALAK, J. DAUT, and G. ELZINGA. The effect of hyperosmolality on the rate of heat production of quiescent trabeculae isolated from the rat heart

515 TAKASHI TSUNENARI, YUKAKO HAYASHI, MANABU ORITA, TAKASHI KURAHASHI, AKIMICHI KANEKO, and TOMOHIKO MORI. A quinine-activated cationic conductance in vertebrate taste receptor cells

525 FUSAO KAWAI, TAKASHI KURAHASHI, and AKIMICHI KANEKO. T-type Ca^{2+} channel lowers the threshold of spike generation in the newt olfactory receptor cell

537 MING LU, YING ZHU, MICHAEL BALAZY, KOMANDLA M. REDDY, JOHN R. FALCK, and WENHUI WANG. Effect of angiotensin II on the apical K^+ channel in the thick ascending limb of the rat kidney

549 L.-Q. Chen, V. Santarelli, R. Horn, and R.G. Kallen. A unique role for the S4 segment of domain 4 in the inactivation of sodium channels

557 H.R. Matthews, M.C. Cornwall, and G.L. Fain. Persistent activation of transducin by bleached rhodopsin in salamander rods

565 Peder K. Gasbjerg, Philip A. Knauf, and Jesper Brahm. Kinetics of bicarbonate transport in human red blood cell membranes at body temperature

577 Philip A. Knauf, Peder K. Gasbjerg, and Jesper Brahm. The asymmetry of chloride transport at 38°C in human red blood cell membranes

591 Correction

593 Author Index to Volume 108